

1. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{5}{7} + \frac{4}{3}x \geq \frac{10}{8}x - \frac{9}{9}$$

- A.  $(-\infty, a]$ , where  $a \in [-21, -20.25]$
  - B.  $[a, \infty)$ , where  $a \in [-22.5, -17.25]$
  - C.  $[a, \infty)$ , where  $a \in [18.75, 22.5]$
  - D.  $(-\infty, a]$ , where  $a \in [18, 23.25]$
  - E. None of the above.
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2. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

More than 9 units from the number 4.

- A.  $(-\infty, -5] \cup [13, \infty)$
  - B.  $(-5, 13)$
  - C.  $[-5, 13]$
  - D.  $(-\infty, -5) \cup (13, \infty)$
  - E. None of the above
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3. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$5 + 6x > 8x \text{ or } 8 + 4x < 5x$$

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-11.25, -7.5]$  and  $b \in [-6.75, 0]$
- B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-10.5, -3.75]$  and  $b \in [-3.75, -0.75]$
- C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-3.75, 4.5]$  and  $b \in [5.25, 12.75]$
- D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [2.25, 4.5]$  and  $b \in [3.75, 9.75]$

E.  $(-\infty, \infty)$

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4. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-4 - 9x < \frac{-40x - 8}{6} \leq 5 - 7x$$

- A.  $(a, b]$ , where  $a \in [-3.97, -0.45]$  and  $b \in [18, 20.25]$   
B.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-3.52, -0.82]$  and  $b \in [16.5, 25.5]$   
C.  $[a, b)$ , where  $a \in [-3.45, 0.22]$  and  $b \in [18, 21.75]$   
D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-4.65, -1.05]$  and  $b \in [16.5, 26.25]$   
E. None of the above.
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5. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7x + 3 \leq 6x + 7$$

- A.  $[a, \infty)$ , where  $a \in [0.05, 0.46]$   
B.  $(-\infty, a]$ , where  $a \in [-0.48, -0.29]$   
C.  $[a, \infty)$ , where  $a \in [-0.55, -0.18]$   
D.  $(-\infty, a]$ , where  $a \in [-0.22, 0.9]$   
E. None of the above.
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6. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-3 + 9x > 10x \text{ or } 4 + 9x < 12x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-5.25, -1.5]$  and  $b \in [-0.75, 2.25]$   
B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-4.95, -1.95]$  and  $b \in [0.75, 2.25]$

- C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-1.72, -0.22]$  and  $b \in [1.5, 6.75]$
- D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-1.5, 6]$  and  $b \in [1.5, 12]$
- E.  $(-\infty, \infty)$

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7. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-8 + 8x \leq \frac{50x + 4}{6} < 6 + 6x$$

- A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-28.5, -22.5]$  and  $b \in [0.75, 3.75]$
- B.  $[a, b)$ , where  $a \in [-32.25, -24]$  and  $b \in [-1.5, 3]$
- C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-26.25, -24.75]$  and  $b \in [-2.25, 3.75]$
- D.  $(a, b]$ , where  $a \in [-27, -22.5]$  and  $b \in [-0.75, 6]$
- E. None of the above.

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8. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

Less than 4 units from the number 10.

- A.  $(6, 14)$
- B.  $[6, 14]$
- C.  $(-\infty, 6] \cup [14, \infty)$
- D.  $(-\infty, 6) \cup (14, \infty)$
- E. None of the above

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9. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{6}{5} - \frac{7}{9}x < \frac{-5}{8}x + \frac{9}{3}$$

- A.  $(a, \infty)$ , where  $a \in [9.75, 15]$
  - B.  $(a, \infty)$ , where  $a \in [-12, -8.25]$
  - C.  $(-\infty, a)$ , where  $a \in [8.25, 13.5]$
  - D.  $(-\infty, a)$ , where  $a \in [-13.5, -9.75]$
  - E. None of the above.
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10. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-10x - 9 < -7x - 8$$

- A.  $(a, \infty)$ , where  $a \in [-0.17, 0.68]$
  - B.  $(-\infty, a)$ , where  $a \in [0.1, 1.4]$
  - C.  $(-\infty, a)$ , where  $a \in [-0.7, -0.2]$
  - D.  $(a, \infty)$ , where  $a \in [-0.48, -0.25]$
  - E. None of the above.
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11. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-5}{4} - \frac{9}{8}x \leq \frac{-5}{6}x + \frac{7}{9}$$

- A.  $(-\infty, a]$ , where  $a \in [3, 7.5]$
  - B.  $[a, \infty)$ , where  $a \in [3.75, 10.5]$
  - C.  $(-\infty, a]$ , where  $a \in [-8.25, -6.75]$
  - D.  $[a, \infty)$ , where  $a \in [-11.25, -4.5]$
  - E. None of the above.
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12. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

Less than 5 units from the number  $-6$ .

- A.  $(-\infty, -11] \cup [-1, \infty)$
  - B.  $(-\infty, -11) \cup (-1, \infty)$
  - C.  $(-11, -1)$
  - D.  $[-11, -1]$
  - E. None of the above
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13. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$3 + 7x > 10x \text{ or } 8 + 9x < 11x$$

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-2.25, 3]$  and  $b \in [3, 5.25]$
  - B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [0.75, 5.25]$  and  $b \in [3.75, 9]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-7.5, -3]$  and  $b \in [-3, 1.5]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-5.25, 0.75]$  and  $b \in [-6, 0.75]$
  - E.  $(-\infty, \infty)$
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14. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5 - 8x \leq \frac{-61x - 9}{8} < -3 - 9x$$

- A.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [6.75, 13.5]$  and  $b \in [-0.75, 5.25]$
- B.  $[a, b)$ , where  $a \in [5.25, 12.75]$  and  $b \in [0.3, 2.02]$
- C.  $(a, b]$ , where  $a \in [9.75, 11.25]$  and  $b \in [0, 6.75]$
- D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [9, 13.5]$  and  $b \in [-0.38, 3.38]$

E. None of the above.

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15. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$6x + 9 \geq 10x - 8$$

- A.  $(-\infty, a]$ , where  $a \in [3.25, 10.25]$
  - B.  $(-\infty, a]$ , where  $a \in [-5.25, 0.75]$
  - C.  $[a, \infty)$ , where  $a \in [4.25, 9.25]$
  - D.  $[a, \infty)$ , where  $a \in [-10.25, 1.75]$
  - E. None of the above.
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16. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-9 + 4x > 5x \text{ or } 6 + 3x < 4x$$

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-9.6, -7.88]$  and  $b \in [2.92, 7.95]$
  - B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-7.65, -5.7]$  and  $b \in [6.75, 10.12]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-7.5, -0.75]$  and  $b \in [6.75, 11.25]$
  - D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-11.25, -8.25]$  and  $b \in [1.5, 6.75]$
  - E.  $(-\infty, \infty)$
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17. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5 - 4x \leq \frac{-33x - 4}{9} < 9 - 6x$$

- A.  $[a, b)$ , where  $a \in [9.75, 19.5]$  and  $b \in [-7.5, -1.5]$
- B.  $(a, b]$ , where  $a \in [10.5, 18]$  and  $b \in [-5.25, 3]$

- C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [8.25, 14.25]$  and  $b \in [-6, -1.5]$
  - D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [10.5, 18.75]$  and  $b \in [-6.75, 1.5]$
  - E. None of the above.
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18. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

More than 7 units from the number 3.

- A.  $(4, 10)$
  - B.  $[4, 10]$
  - C.  $(-\infty, 4] \cup [10, \infty)$
  - D.  $(-\infty, 4) \cup (10, \infty)$
  - E. None of the above
- 

19. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{9}{2} - \frac{7}{4}x \leq \frac{7}{6}x - \frac{10}{3}$$

- A.  $(-\infty, a]$ , where  $a \in [-3.75, -2.25]$
  - B.  $[a, \infty)$ , where  $a \in [1.5, 3.75]$
  - C.  $(-\infty, a]$ , where  $a \in [0, 5.25]$
  - D.  $[a, \infty)$ , where  $a \in [-7.5, 0.75]$
  - E. None of the above.
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20. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-10x + 8 < -8x + 7$$

- A.  $(a, \infty)$ , where  $a \in [-2.1, -0.2]$
  - B.  $(-\infty, a)$ , where  $a \in [-2.98, -0.08]$
  - C.  $(-\infty, a)$ , where  $a \in [0.18, 1.43]$
  - D.  $(a, \infty)$ , where  $a \in [0.4, 4]$
  - E. None of the above.
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21. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-6}{2} - \frac{10}{8}x \leq \frac{-9}{3}x + \frac{10}{9}$$

- A.  $[a, \infty)$ , where  $a \in [-3.75, 0]$
  - B.  $(-\infty, a]$ , where  $a \in [0.75, 3.75]$
  - C.  $[a, \infty)$ , where  $a \in [-1.5, 4.5]$
  - D.  $(-\infty, a]$ , where  $a \in [-4.5, -0.75]$
  - E. None of the above.
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22. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

More than 8 units from the number  $-7$ .

- A.  $(-15, 1)$
  - B.  $[-15, 1]$
  - C.  $(-\infty, -15] \cup [1, \infty)$
  - D.  $(-\infty, -15) \cup (1, \infty)$
  - E. None of the above
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23. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5 + 9x > 10x \text{ or } -9 + 3x < 6x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [1.5, 6]$  and  $b \in [0.75, 12.75]$
  - B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-6, -0.75]$  and  $b \in [-3.75, -2.25]$
  - C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [1.5, 6]$  and  $b \in [2.25, 6]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-11.25, -2.25]$  and  $b \in [-6, -2.25]$
  - E.  $(-\infty, \infty)$
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24. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-4 + 5x \leq \frac{42x - 7}{8} < -5 + 4x$$

- A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-18, -12]$  and  $b \in [-3.75, 1.5]$
  - B.  $(a, b]$ , where  $a \in [-15.75, -9.75]$  and  $b \in [-8.25, 0.75]$
  - C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-17.25, -11.25]$  and  $b \in [-5.25, -3]$
  - D.  $[a, b)$ , where  $a \in [-16.5, -11.25]$  and  $b \in [-6, 0]$
  - E. None of the above.
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25. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-3x - 9 < 3x - 10$$

- A.  $(-\infty, a)$ , where  $a \in [-0.36, 0.02]$
- B.  $(-\infty, a)$ , where  $a \in [0.09, 0.46]$
- C.  $(a, \infty)$ , where  $a \in [-0.04, 0.52]$
- D.  $(a, \infty)$ , where  $a \in [-0.83, 0.16]$

E. None of the above.

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26. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7 + 9x > 12x \text{ or } 3 + 7x < 10x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-1.5, 0.38]$  and  $b \in [1.88, 4.2]$
  - B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-2.48, -1.43]$  and  $b \in [-1.88, 1.12]$
  - C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-3.75, -2.25]$  and  $b \in [0.85, 1.04]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-1.5, 2.25]$  and  $b \in [2.31, 4.06]$
  - E.  $(-\infty, \infty)$
- 

27. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7 - 6x < \frac{-15x - 9}{5} \leq 7 - 4x$$

- A.  $(a, b]$ , where  $a \in [-3, 0]$  and  $b \in [7.5, 12]$
  - B.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-3, 0]$  and  $b \in [4.5, 12.75]$
  - C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-2.25, 1.5]$  and  $b \in [7.5, 15]$
  - D.  $[a, b)$ , where  $a \in [-3, -0.75]$  and  $b \in [6.75, 11.25]$
  - E. None of the above.
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28. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

Less than 5 units from the number  $-5$ .

- A.  $(-\infty, -10] \cup [0, \infty)$
- B.  $(-\infty, -10) \cup (0, \infty)$

- C.  $(-10, 0)$
  - D.  $[-10, 0]$
  - E. None of the above
- 

29. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{7}{4} - \frac{4}{6}x \leq \frac{-3}{8}x - \frac{4}{5}$$

- A.  $(-\infty, a]$ , where  $a \in [6, 14.25]$
  - B.  $(-\infty, a]$ , where  $a \in [-10.5, -6.75]$
  - C.  $[a, \infty)$ , where  $a \in [8.25, 12]$
  - D.  $[a, \infty)$ , where  $a \in [-9, -6]$
  - E. None of the above.
- 

30. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-4x + 6 > 3x + 3$$

- A.  $(-\infty, a)$ , where  $a \in [-1.38, -0.13]$
  - B.  $(-\infty, a)$ , where  $a \in [0.41, 1.04]$
  - C.  $(a, \infty)$ , where  $a \in [0.36, 0.73]$
  - D.  $(a, \infty)$ , where  $a \in [-1.04, -0.24]$
  - E. None of the above.
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